

**County of San Bernardino
Department of Public Health
Division of Environmental Health Services
Vector Control Program**

**Comprehensive West Nile Virus
Surveillance and Control Plan**

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**San Bernardino County Vector Control Program
2355 E. 5th Street
San Bernardino, CA 92410.
Tel: 909-388-4600, Fax: 909-386-5148**

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Please forward any questions or comments to:

J. Wakoli Wekesa, Ph.D., Vector Ecologist

E-mail: wwekesa@dph.sbcounty.gov

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I. Statement of Purpose

The mission of the **San Bernardino County Vector Control Program (SBCVCP)** is to enhance the health and quality of life of the County residents through the suppression of mosquito and other vector-transmitted diseases, and the reduction of annoyance levels caused by mosquitoes and other pests of public health importance.

In the event that San Bernardino County or the California Department of Health Services declares emergency conditions, SBCVCP will take emergency control measures to prevent the spread of West Nile Virus (WNV) and other mosquito-borne diseases. This document is a description of the SBCVCP's plan, together with other agency partners, for detecting and controlling transmission of diseases by our local mosquito populations.

II. Introduction

In late summer of 1999, the first domestically acquired human cases of West Nile Virus (WNV) were documented in the United States (CDC 1999) with all 62 cases including 7 deaths occurring in the state of New York. Concurrent observations of infected birds at the Bronx Zoo and wild birds in New York brought to fore a virus never before found in the Western Hemisphere.

The discovery of virus-infected overwintering mosquitoes during the winter of 1999-2000 predicted renewed virus activity for the following spring (CDC 2000). By the end of the 2000 season, WNV activity had been identified in 12 states (from New Hampshire and Vermont in the north to North Carolina in the south) with 21 human cases and 2 deaths. The WNV activity spread further south and west in 2001 infesting 17 states including Florida, Georgia, Louisiana, and Alabama. A total of 66 cases and 9 deaths were recorded for 2001. Despite this geographic distribution and number of human cases, no one could have predicted what was to occur in 2002. In 2002, the spread of WNV reached the Pacific coast covering all states in the contiguous United States, with the exception of Arizona, Nevada, Oregon, and Utah. In 2002, a total of 44 states reported WNV activity and over 4,000 human cases were reported, including 254 deaths. In California, one human case of locally acquired WNV was found in Los Angeles County; however, no further WNV activity was found in the State in 2002.

To reduce the risk of an outbreak of WNV in San Bernardino County, the SBCVCP, in conjunction with the California Department of Health Services (DHS), developed a comprehensive WNV surveillance and control program that was integrated into the statewide mosquito-borne encephalitis surveillance program. The state, in collaboration with local vector control agencies, has been operating this mosquito-borne encephalitis surveillance program since 1969, monitoring Western Equine Encephalitis (WEE), St. Louis Encephalitis (SLE), and other viruses. In 2000, DHS, in conjunction

with SBCVCP and other local vector control agencies, expanded their encephalitis surveillance programs to improve the ability to detect WNV. Procedures for reporting and testing dead birds were added to the existing encephalitis surveillance system that involves monitoring of humans, equines, and sentinel chickens and testing mosquito pools.

West Nile Virus is a member of the family *Flaviviridae* (genus *Flavivirus*). Serologically, it is a member of the Japanese encephalitis virus complex that includes SLE. WNV was first isolated from an infected person in the West Nile province of Uganda in 1937. The first recorded epidemics occurred in Israel during 1951-54, and in 1957. Many other outbreaks have occurred in Africa, Middle East, Southeast Asia, and Europe, but their frequency and virulence seems to have increased in the last 10-20 years.

West Nile Virus can infect a wide range of vertebrates in humans, it usually produces either asymptomatic infection or mild febrile illness. Sometimes it is accompanied by a rash, but may cause severe and fatal infection in a few patients. About 50% of positive human cases with encephalitis or meningitis have severe muscle weakness, and 10% develop flaccid paralysis consistent with axonal neuropathy. The case fatality rate over the last 3 years in the US has been about 6.5%.

Unlike the experiences of WNV in its normal geographic range or SLE in the Western Hemisphere, WNV in the US has caused high mortality in a variety of bird species. Although reasons for these disparities are unknown, public health and vector control agencies have used bird mortality, particularly birds of the family Corvidae, to track WNV expansion in the last 3 years. Most birds survive WNV infection as indicated by the high seroprevalence in numerous species of resident birds within regions of greatest virus transmission.

During the 1999 New York outbreak of WNV, members of the *Culex pipiens* (*Cx. pipiens*) complex were considered the primary epizootic vectors. In the last 4 years more than 25 mosquito species have been implicated in the transmission of WNV in the US including *Cx. pipiens*, *Cx. quinquefasciatus*, *Cx. salinarius*, *Aedes vexans*, and *Culiseta* *sp.* Recent vector competence studies indicate that some California species in the genus *Culex* (*Cx.*) and *Ochlerotatus* (*Oc.*) are efficient vectors of WNV (Goddard *et al.* 2002). Among those mosquitoes that may play an important role in the enzootic cycle of maintaining and transmitting WNV in California include *Cx. tarsalis*, *Cx. stigmatosoma*, *Cx. erythrothorax*, *Cx. pipiens*, *Oc. Sierrensis*, and *Cx. quinquefasciatus*. Monitoring and control of these and other mosquito species will greatly enhance our ability to manage and reduce the impact of the anticipated WNV.

This document details SBCVCP West Nile Virus Surveillance plan for 2003. It provides details of how the Program will monitor and control mosquito breeding, test mosquito pools, dead birds, sentinel chickens, mammals, and humans for WNV, and provide a comprehensive control program by educating the public and liaising with other local, state, and federal agencies. The details of the program are documented as follows.

III. Components of the WNV Response Plan

1. Prevent the production of mosquitoes through active surveillance and control of larval breeding.
2. Monitor and control local adult mosquito populations for the potential to transmit WNV and endemic arboviruses.
3. Monitor presence of WNV and other arboviruses in sentinel chickens, other avian species, horses, and human hosts.
4. Maintain a pro-active public education and community outreach program.
5. Coordinate vector control activities with other local, state, and federal public health agencies.

1. Prevent the production of mosquitoes through active surveillance and control of larval breeding.

The winter and spring precipitation and temperature data is used to predict potential mosquito population and arbovirus activity for the coming summer season. The above average, late winter, and spring rainfall or snowstorms will be monitored for their impact on mosquito production.

Larval surveillance involves sampling a wide range of aquatic habitats for the presence of pest and vector species during their developmental stages. Field technicians regularly perform systematic surveillance for known and new larval habitats. Once mosquito larvae or pupae are identified in these sites treatment is initiated to help reduce the potential of virus transmission in an area.

- a) SBCVCP maintains an extensive record of sources of mosquito breeding sites in the County. These records show seasonality, abundance, species, and treatment agents used at those larval breeding sites. These sites are routinely inspected, and, whenever necessary, treated.
- b) Sites frequently found breeding mosquitoes include ditches, storm drains, catch basins, detention basins, utility vaults, ditches, and abandoned or neglected pools and ponds.
- c) SBCVCP routinely monitors all flood control land, public parks, other public facilities, and private land for mosquito breeding. Whenever larval or pupae presence is observed treatment is done, with follow-up effort to ensure effective control has been achieved.

2. Monitor local adult mosquito populations for the potential to transmit WNV and endemic arboviruses.

Important mosquito breeding sites in the County will be regularly monitored and treated. Biological factors that may directly influence potential for disease outbreak in humans will be monitored as follows:

- a) Abundance of adult mosquitoes

SBCVCP employs three trapping methods to monitor adult mosquito population: New Jersey Light Traps (NJLT), Carbon Dioxide-Baited CDC Traps

(CO₂-baited Traps), and Gravid Traps. The NJLT and the CO₂-baited trap are placed at 20 locations throughout the County to help assess mosquito abundance in specific locales. These traps use light and carbon dioxide as attractants for mosquitoes, respectively.

An additional trapping system used by SBCVCP to monitor adult mosquito population is the gravid trap. The gravid trap uses hay infusion to attract gravid female mosquitoes.

- i. New Jersey Light Trap will be run continuously all year round and collections made every Thursday. Carbon dioxide-baited CDC traps and gravid traps will be operated overnight once every two weeks.
- ii. Mosquitoes collected in all the traps will be identified by sex, species, and the total count recorded. Mosquitoes collected from NJLT will be used for overall mosquito abundance records, while female mosquitoes collected from CO₂-baited traps and gravid traps will be pooled and used for virus isolation.
- iii. The WNV surveillance effort will be focused on the major arbovirus vectors in the area that include *Cx. tarsalis*, *Cx. stigmatosoma*, *Cx. quinquefasciatus*, *Cx. erythrothorax*, *Ae. vexans*, and *Oc. Sierrensis*.
- iv. Collections from individual traps exceeding 10 mosquitoes per trap night will trigger a follow-up control effort to identify the source mosquitoes within a one-half mile radius of the trap site.

b) Detection of virus in mosquitoes

Using CO₂-baited traps and gravid traps, SBCVCP will collect and pool mosquitoes that will be submitted to the California Viral and Rickettsial Disease Laboratory (VRDL) for virus testing. Once mosquito pool tests positive they are confirmed at the Davis Arbovirus Research Unit (DARU), University of California at Davis. The mosquito collections are done once every other week at different locations in the County. Additional sampling will be conducted whenever one of our 70 sentinel chickens tests positive for arboviruses in the surveillance.

- i. Pools of 10-50 female mosquitoes of four vector species (*Cx. tarsalis*, *Cx. stigmatosoma*, *Cx. quinquefasciatus*, and *Cx. erythrothorax*) will be collected and submitted to the VRDL and DARU for virus testing.
- ii. Detection of WNV and any other mosquito-borne viruses in the submitted pools will be reported to SBCVCP and information immediately relayed to the Division of Environmental Health Services, the Epidemiology and Veterinary Preventive Services Programs of the San Bernardino County Department of Public Health, and the County Public Health Officer.

- iii. Information of positive mosquito pools will trigger a series of supplemental mosquito control efforts in the vicinity where mosquito pools were collected. A press release may be prepared and approved by management cautioning the public of the risk associated with the virus detected in the community.
- iv. Specific actions will include inspections of mosquito production sources within one-half mile radius from the trapping site, application of larvicides to larval sources, additional trapping of adult mosquitoes, and, when necessary, posting of warning signs and eventually adulticiding the area.

3. Monitor presence of WNV and other arboviruses in sentinel chickens, other avian species, horses, and human hosts.

a) Detection of virus in sentinel chickens.

Detection of transmission of arboviruses in avian populations by SBCVCP is accomplished by using caged chickens in sentinel that are routinely bled to detect for the presence of viral antibodies (seroconversions). Flocks of ten chickens are maintained at different locations throughout the County where mosquito abundance is known to be high and where there has been a history of virus activity. SBCVCP has seven chicken flocks stationed in Upland, Fontana, Colton, Redlands, San Bernardino, Yucaipa, and Needles. Sentinel chickens may indicate virus activity of an area by having positive antibodies to specific arboviruses.

- i. Sentinel chickens will be set out in early spring in the pre-selected areas.
- ii. Each chicken will be bled once every two weeks by pricking the comb and blood collected on filter paper strip. Blood specimens will be submitted to the VRDL and DARU for virus testing, and
- iii. Samples that contain antibodies to arboviruses will be reported to the SBCVCP as soon as results are available. This information is immediately relayed to the Division of Environmental Health Services, the Epidemiology and Veterinary Preventive Services Programs of the San Bernardino County Department of Public Health, and the County Public Health Officer.
- iv. A press release may be prepared cautioning the public of the risk associated with the virus detected in the community.
- v. Information of positive chickens will trigger a series of supplemental activities in the vicinity of the chicken flocks. Adult mosquitoes will be collected for virus isolation to determine the extent of the virus activity in the area. Specific actions will include inspections of mosquito production sources within one-half mile radius from the trapping site, application of larvicides to the sources, additional trapping of adult mosquitoes, and, when necessary, posting of warning signs and application of pesticides to control adult mosquitoes.

b) Detection of virus in wild birds

SBCVCP does not routinely monitor virus activity in the wild bird populations; however, due to the high mortality among a variety of avian species caused by WNV, surveillance of dead birds was started in the year 2000 to help detect WNV. The virus can be identified in wild birds by detecting antibodies against WNV or WNV RNA by RT-PCR (Reverse Transcriptase-Polymerase Chain Reaction).

- i. Collection of carcasses of dead birds will resume in the spring. Wild birds that may have died within the last 24 hours, not scavenged on and without obvious injury marks will be submitted to California Animal Health and Food Safety (CAHFS) for necropsy and to VRDL for virus testing.
- ii. SBCVCP will solicit submission of dead birds from the public through press releases, public education, and community outreach programs. Humane societies, animal control programs, and veterinary groups will be contacted to assist in the collection and submission of dead birds.
- iii. Each of our field staff will be assigned an ice cooler that will be stocked with ice every morning. Once in the field, reports of dead birds from the public or referral from the State will be forwarded to allow prompt pick up of dead birds that will be preserved on ice and brought in before 3:00 PM. All dead birds received by 3:30 PM will be submitted to CAHFS's office in San Bernardino before the end of the day.
- iv. Birds positive for West Nile Virus will be reported to SBCVCP as soon as results are available, and this information will be immediately relayed to the Division of Environmental Health Services, the Epidemiology and Veterinary Preventive Services Programs of the San Bernardino County Department of Public Health, and the County Public Health Officer.
- v. A press release may be prepared cautioning the public of the risk associated with the virus detected in the community.
- vi. One or more birds testing positive to WNV in the County will trigger a series of activities at SBCVCP that will include:
 - o A thorough search and treatment of larval breeding to control mosquito production.
 - o Collection of adult mosquitoes for virus isolation and testing, and, when necessary, control of adult mosquitoes may follow.
 - o The Epidemiology and Veterinary Preventive Services may increase their surveillance for human and horse populations in the affected communities.

c) Monitor for cases of arbovirus infection in Equines.

Veterinarians are contacted annually by DHS and the California Department of Food and Agriculture (CDFA) to ensure that equines are vaccinated and to describe diagnostic services that are available in the event of suspected cases of equine encephalitis. Currently, equine disease due to WEE is not a sensitive indicator of epizootic WEE activity in California due to widespread vaccination of equines against WEE infections. In fact, the increasing use of the experimental WNV vaccine in horses may lower the ability of detecting WNV in a given area. However, if confirmed cases do occur, it will be a clear indication of virus activity in the area.

- i. The Veterinary Preventive Services Program of the San Bernardino County Department of Public Health, in conjunction with the DHS and CDFA will submit samples of arboviral suspect cases to CAHFS for testing.
- ii. DHS and CDFA will be responsible for notifying all local public health officials and the SBCVCP about equines testing positive to any of the mosquito-borne viruses.
- iii. Once a positive equine is reported to the SBCVCP, mosquito surveillance and control will commence in the area where the positive animal was housed.
- iv. A thorough search for larval breeding sites and collection of adult mosquitoes for virus testing will be done. Sources found with immature stages of mosquitoes will be treated and, whenever necessary, adult mosquitoes shall be sprayed with adulticides.

d) Monitor for cases of arbovirus infection in humans.

Human cases are a poor surveillance indicator of virus activity in a given location because most human infections show only mild or no symptoms at all. When severe cases do occur (e.g., encephalitis or aseptic meningitis), physicians may not establish a definitive diagnosis of an arboviral disease. In an attempt to increase awareness in detecting arboviral diseases in the state, DHS has engaged hospitals and local health departments by providing rapid testing of suspect cases through the DHS California Encephalitis Project. Tests are focused on 15 infectious agents including SLE, WEE, and WNV.

- i. The Epidemiology Program of Public Health Department, in conjunction with the San Bernardino County Public Health Laboratory and local hospitals will refer samples that meet certain criteria to the VRDL for testing.
- ii. Normally, VRDL notifies all local public health officials, and directors of private and public health laboratories, and the general medical community on procedures to follow in reporting and submitting specimens of suspect human cases to local public health for possible forwarding to VRDL.
- iii. Detection of arboviruses in mosquito pools, sentinel chickens, wild birds, and equines will be reported to the County Public Health Officer

so that physicians and hospitals in the vicinity are alerted to check for patients who may display symptoms compatible with arboviral infection.

- iv. The SBCVCP will maintain a close liaison with the rest of the County Public Health Department for notification of suspect and confirmed cases within our jurisdiction so that epidemiological investigations, mosquito surveillance, and control efforts can be coordinated.
- v. All confirmed human cases of arboviral infection would be investigated by the San Bernardino County Epidemiology Program (SBCEPI) to determine the case history of the patient. SBCVCP shall be notified after such a determination to help focus the mosquito surveillance and control activities in areas that may have not received the required attention.

4. Maintain an active public education and community outreach program.

Public education and community outreach will be directed to the general public to teach them about mosquito biology and encourage citizens to adapt environmental management techniques and personal protection measures that will reduce mosquito bites. Obtaining the interest and investment of the community will be critical to the success of public education and community outreach programs.

- a) The SBCVCP will disseminate information including fact sheets, brochures, and lectures to local schools, civic groups, County employees, libraries, and other public and private entities regarding surveillance and mosquito control programs.
- b) The SBCVCP will educate the public about the local and statewide mosquito-borne disease surveillance and control programs through the press and informal sessions.
- c) The SBCVCP will liaise with other sections of the San Bernardino County Department of Public Health and the DHS/Vector-Borne Disease Section (VBDS) in the preparation and coordination of press releases and dissemination of information through the press once WNV arrives.

5. Coordinate vector control activities with other local, state and federal public health agencies.

a) Collaborating Agencies

- ✓ San Bernardino County Vector Control Program (SBCVCP)
- ✓ San Bernardino County Department of Public Health (SBCEPH)
 - o Epidemiology Program (SBCEPI)
 - o Preventive Veterinary Services (SBCEPVS)
 - o Public Health Laboratory (SBCEPHL)

- o Animal Care and Control (SBCACC)
- ✓ Mosquito and Vector Control Association of California (MVCAC)
- ✓ California Department of Health Services (DHS)
 - o Vector-Borne Disease Section (VBDS)
 - o Viral and Rickettsial Disease Laboratory (VRDL)
 - o Veterinary Disease Section (VDS)
- ✓ California Department of Food and Agriculture (CDFA)
- ✓ California Animal Health and Food Safety (CAHFS)
- ✓ Davis Arbovirus Research Unit at University of California at Davis (DARU)
- ✓ Center for Vector-Borne Disease Research at UC Davis (CVBDR)
- ✓ U.S. Centers for Diseases Control and Prevention (CDC)

b) Responsibilities of Collaborating Agencies

- i. SBCVCP will provide monitoring and surveillance of mosquito populations, collection of mosquito pools, blood samples from sentinel chickens, and submit wild bird carcasses to VRDL, DARU, and CAHFS for virus testing.
- ii. VBDS, VDS, and CDFA will help coordinate and facilitate testing of samples submitted to various laboratories and help disseminate the results to local agencies.
- iii. SBCVCP will conduct preventative mosquito control within the Program's jurisdiction, and will apply larvicides and adulticides whenever necessary.
- iv. SBCVCP and CVBDR will monitor pesticide resistance levels and determine effectiveness of available larvicides and adulticides in controlling local mosquito species.
- v. If a positive human or equine case is identified, SBCVCP will liaise with all relevant agencies to facilitate control and limit spread of the disease.
- vi. If an outbreak of a mosquito-borne disease is imminent and emergency control is needed, the SBCDPH and VBDS will assist the SBCVCP in obtaining the necessary local, state, and federal resources to bring the situation under control.

IV. Response Levels for Arbovirus Monitoring and Control

This response plan is based on conditions that exist at three response levels identified as normal season, emergency planning, and epidemic. Seven risk factors are analyzed to determine the appropriate response:

- a) Environmental conditions
- b) Adult mosquito vector abundance
- c) Virus isolation rate from mosquitoes
- d) Rate of sentinel chicken seroconversion
- e) Prevalence of infection in wild or domestic animals
- f) Prevalence of human cases
- g) Proximity of detectable virus activity to urban or suburban areas

1) LEVEL I – Normal Season

- a) Triggers:
 - i) Normal or below average rainfall and snow pack.
 - ii) Normal or below average vector mosquito populations.
 - iii) Absence of WNV or other arbovirus antibodies in sentinel chickens.
- b) Responses:
 - i) Conduct routine public education including advice the public to eliminate standing water around homes, use personal protective measures, etc.
 - ii) Conduct routine mosquito and virus surveillance activities.
 - iii) Conduct routine control of mosquito larvae.
 - iv) Maintain adequate supply of pesticides and equipment.
 - v) Evaluate pesticide resistance in vector species.
 - vi) Ensure adequate emergency funding.
 - vii) Release routine press notices.
 - viii) Liaise with other programs of the SBCDPH to routinely notify physicians and hospitals on the status of diseases in the area.
 - ix) Establish and maintain routine communication with local Office of Emergency Services.

2) LEVEL II – Emergency planning

- a) Triggers:
 - i) Above average spring rainfall and heavy snow pack with the expectation of high inundation of flood control channels, streams, rivers and lakes in the county that produce mosquitoes.
 - ii) Abundant, persistent and widespread natural breeding sources available for vector species compared to normal seasons.

- iii) Above average populations of vector species due to the availability of the above conditions, particularly in areas of human population.
 - iv) One virus isolation from mosquitoes (minimum infection rate (MIR) per 1000 mosquitoes is <5).
 - v) One to three seroconversions per flock of 10 sentinel chickens.
 - vi) One virus isolation from wild bird carcasses or other susceptible species.
 - vii) One locally acquired equine case.
 - viii) One locally acquired human case.
- b) Responses:
- In addition to Level I responses, the following activities will be undertaken:
- i) Enhance public education by including messages on signs and symptoms of encephalitis, advise medical care, inform public of pesticide applications,
 - ii) Enhance information to public health providers and other key organizations and agencies.
 - iii) Increase surveillance and control of mosquito larvae.
 - iv) Increase number or frequency of traps set for adult mosquitoes.
 - v) Increase number of mosquito pools tested for viruses.
 - vi) Review and evaluate efficacy of labeled candidate adulticiding materials and contact formulators regarding availability.
 - vii) Conduct localized chemical control of adult mosquitoes, if needed.
 - viii) Review and modify response plan as necessary.
 - ix) Ensure notification of key agencies of the presence of viral activity including local Office of Emergency Services.

3) Level III – Epidemic Conditions

- a) Triggers:
- i) Snowpack, rainfall, and water release rates from flood control dams well above average.
 - ii) Adult vector populations extremely high (>50 / trap night).
 - iii) Virus isolation from multiple pools of mosquitoes ($MIR / 1000 > 5.0$).
 - iv) Four or more seroconversions per flock of 10 birds in multiple flocks.
 - v) Two or more locally acquired equine cases.
 - vi) One or more locally acquired human cases.
 - vii) Virus detection in urban or suburban areas.
 - viii) Increased seroconversion of wild birds or die-off of susceptible species.
- b) Responses:
- In addition to Level II responses, the following activities will be undertaken:
- i) SBCEPI and SBCVCP through SBCEPH will issue news releases to alert physicians and advise the public on personal protection measures.
 - ii) SBCEPI will conduct active human case detection.
 - iii) Broaden geographic coverage of adult mosquito surveillance.
 - iv) Expand adult mosquito control if appropriate.

- v) The SBCVCP will coordinate its response with the Public Health Officer and the local Office of Emergency Services (909) 388-5831 or, if activated, the Emergency Operation Center (EOC).
- vi) The VBDS will explore all avenues available for emergency funding at the state and federal levels, and secure their release to local control agencies.
- vii) The SBCVCP will initiate mosquito surveillance and control in regions outside the District.
- viii) Requests for public health exemptions from FIFRA (40 CFR 166) and emergency tolerance exemptions (40 CFR 176) will be submitted by VBDS.
- ix) SBCDPH and SBCVCP staff will determine whether a declaration of a “State of Emergency” should be considered by the County Board of Supervisors or Public Health Officer.
- x) SBCDPH and SBCVCP staff will determine whether local officials should request the Governor to declare a “State of Emergency.”
- xi) Educational and mosquito control campaigns will continue until mosquito abundance is substantially reduced and no additional human cases are detected.

V. West Nile Virus Team members

1) Epidemiology

The San Bernardino County Epidemiology Program will provide the results of epidemiological investigations to the SBCVCP as part of the ongoing disease surveillance and control program within the county and state.

2) Laboratory Services

Surveillance of mosquito-borne diseases in the County will depend on the services provided by VRDL, DARU, and CAHFS for testing mosquito pools, blood from sentinel chickens and dead birds, and, whenever necessary, depend on CDC for confirmation of tests. Also, VRDL collaborates with local laboratories including San Bernardino County Public Health Laboratory in testing suspected human or equine cases submitted by local public health agencies.

3) Mosquito Surveillance and Control

a) Mosquito Surveillance

Adequate resources are available at the SBCVCP to carry out surveillance activities within its jurisdiction. This includes trained staff and equipment for collecting adult mosquitoes (portable traps, aspirators), shipping containers, and retail source for dry ice.

b) Mosquito Control

- i) The SBCVCP will utilize appropriate provisions of the Health and Safety Code and the Government Code to provide funding for routine and emergency mosquito control. Sections covering standby charges for public health emergencies can be found in Chapter 8, Part 2, Division 2 of Title 3 of the Government Code commencing with §25850 or Chapter 5, Division 3, Article 5.1 of the Health and Safety Code Commencing with §2315.
- ii) Once a human or equine case is detected in a populated area where resources and public outcry limit the widespread use of adulticiding materials, an intensive larviciding program will be necessary to interrupt virus transmission and reduce adult mosquito population.
- iii) VBDS maintains current information provided by MVCAC Chemical Control Committee on the inventory of mosquito control equipment and pesticides used by local vector control agencies in California. SBCVCP will use this list to increase its equipments and pesticide supplies.
- iv) VBDS will assist SBCVCP by evaluating adult mosquito control operations and providing needed support during such emergencies.
- v) Under MVCAC and DHS Memorandum of Understanding, neighboring local agencies will avail to us equipments and personnel during emergencies

4) Equipments and Supplies

In addition to our current inventory, the following equipments and supplies will be requested as part of our preparation for the arrival of WNV:

- a) 1 Fogger, portable and easily convertible from a ULV fogger to an “Arro-Gun” granule or pellet dispenser. Such a granule or pellet dispenser should be able to shoot material over 35 feet distance.
- b) 4 New Jersey Light Traps
- c) 6 Gravid Traps
- d) 6 Carbon Dioxide-baited CDC Traps
- e) Lab supplies such as tubes, needles, trays, forceps, bags, gloves, aspirators, tyvek suits, ice containers, etc.
- f) Refrigerated centrifuge, slide chiller, and slide warmer.
- g) Double our pesticide inventory and bring in new pesticides to allow for an effective management of pesticide resistance program.
 - i) Larvicides- Vectolex CG, Vectobac CG, and Bactimos briquets
 - ii) Adulticides- Scourge, Cynoff WP, Suspend SC WP, Aqua Reslin, and Pyrenone 25-5.